

## ***Forest & Shade Tree - Insect & Disease Conditions for Maine August 17, 2007***

The mid- to late summer season is usually a quiet period regarding most insect and disease problems of trees and forests. Because of relatively well-distributed and adequate rainfall, this summer has been a welcome relief from the excessively wet seasons and the droughts of recent past years. With very few exceptions, hardwood (broadleaf) species appear to be in very good health, with full crowns and dark green foliage. Early fall coloration, which commonly appears on stressed trees, has started to show on comparatively few individuals. It is expected that the conifers, many of which appear heavily damaged this year by needle casts and tip blights intensified by the wet weather of the previous two years, will begin to show improvement next year, as well.

### **Hemlock Woolly Adelgid News**

**New Hemlock Woolly Adelgid Quarantine Rules.** Hemlock woolly adelgid is a dangerous insect pest of hemlock. In response to the adelgid's presence in Maine and its range expansion in states to our south and west, the Maine Department of Agriculture and Maine Forest Service have worked together with stakeholders to revise the quarantine rules for this non-native insect pest. The revised rules, effective August 5<sup>th</sup>, add six York County towns to the hemlock woolly adelgid quarantine: **Eliot, Kittery, Ogunquit, South Berwick, Wells and York.**

People planning to move hemlock products with bark from within the quarantined area to areas outside the quarantine should plan their harvests and marketing for the months of August through February. During this time the risk of spread of hemlock woolly adelgid from hemlock forest products is reduced because the adults have not begun to lay eggs, and the mobile stage of the insect, the crawlers, are not present. These two stages, eggs and crawlers, are the most likely to survive dispersal and establish in a new area. Regardless of when hemlock products are moved from the quarantine area, they will have to go to a site with a compliance agreement. Contact the Maine Forest Service for a list of companies with agreements to receive hemlock products from the quarantined area.

Businesses and individuals who plan to receive hemlock products from within the quarantine area should contact the Maine Forest Service to discuss a compliance agreement. Hemlock materials regulated by this quarantine include hemlock bark, brush, chips, logs, stumps and other products with bark. This includes products from activities such as forest operations, land clearing and landscape tree removal.

The movement of hemlock forest products with bark is affected in the following ways:

- Hemlock forest products may be transported freely *within* the quarantine area.
- From August 1<sup>st</sup> through February 28<sup>th</sup>, hemlock may be transported to mills or other businesses outside the quarantine area which maintain a compliance agreement with the Maine Forest Service related to the handling of regulated hemlock products. We are currently working with hemlock industries to set up compliance agreements for receipt of potentially infested material. The only legal place to move hemlock material with bark from the quarantine area to areas outside the quarantine is to a receiver with a compliance agreement with the Maine Forest Service.
- From March 1<sup>st</sup> through July 31<sup>st</sup>, hemlock may be moved to facilities with an agreement to receive regulated products from the hemlock woolly adelgid quarantine area only after being certified apparently free of adelgid by an inspector from the Maine Forest Service. Infested products cannot be moved during this period.

The Maine Forest Service is committed to minimizing the artificial spread of hemlock woolly adelgid. The quarantine is an important tool in this effort. If you have questions about the quarantine or about moving hemlock forest products, please call the Insect and Disease Lab at (207) 287-2431.

**New Frontier for Hemlock Woolly Adelgid—Detections in Vermont’s Native Hemlocks.** Hemlock woolly adelgid was detected on native hemlocks in Vermont this summer. Previously, Vermont had encountered adelgid infestations only on nursery stock. The discoveries this summer, both in Windham County (the southeastern-most Vermont County), are probably a result of the natural expansion of the adelgid infestation.

Please continue to examine your hemlocks for signs of this insect. Resources for identifying hemlock and hemlock woolly adelgid are available on the Maine Forest Service, Forest Health and Monitoring website:

<http://www.maine.gov/doc/mfs/idmhome.htm>.

If you suspect you have found hemlock woolly adelgid, please report it to the Maine Forest Service at 1-800-367-0223 (in State) or (207) 287-2431.

## Insects

**\*Fall Webworm (*Hyphantria cunea*)** - The unsightly webs of the fall webworm have been evident for the past few weeks, and will likely increase into the early fall months. A wide variety of hardwood species act as hosts for this insect including ashes, oaks, birches, and cherries. The most obvious sign of this pest is the webbing that it produces, usually on the outermost tips of the branches. Trees may have a single web, or may be “decorated” with dozens. The caterpillars feed on and skeletonize the foliage within the web as they proceed. The adult moths are white and are rarely noticed or recognized. Caterpillars are pale yellow and hairy with paired black spots along their backs. Adults are active from May into July and females lay small clusters of eggs on the undersides of foliage. The newly hatched larvae appear by late July and begin to form silken webs around the foliage. Many caterpillars will occupy one tent or web. Small trees may be completely covered with silk and totally defoliated. However, injury happens late in the growing season, and if the tree is not under stress from other factors, damage is usually inconsequential. The primary effect of fall webworm infestations is the loss in aesthetics of ornamental and roadside trees. Last year in Maine the populations of webworm were quite high. We expect populations may be lower this year. On trees with only a few webs, the most practical treatment is simply to clip out and destroy the infested branch tips. To limit damage, it is best to clip the webs as soon as they are detected. After removing webs from the tree, plunge them in a bucket of soapy water to smother the caterpillars. You can also wind the webs on a stick and plunge the stick into soapy water. *Bacillus thuringiensis* (B.t.), and other insecticides are effective on the younger larvae.

**\*Gypsy Moth** (*Lymantria dispar*) – The Augusta City Arborist and Portland City Forester each reported evidence of gypsy moth feeding on blue spruce this month. Although the gypsy moth has a taste for a wide variety of trees and shrubs, it is unusual for it to noticeably defoliate blue spruce, especially in a year when its favored hardwood hosts have such lush foliage. However, the European gypsy moth (the strain traditionally common in eastern North America) has a closely related look-alike, the Asian gypsy moth. Asian gypsy moth has more of an appetite for conifers and is known to feed on more than 500 species of woody plants (compared to the modest 300 of its European cousin). Although Asian gypsy moth is not known from this part of the world, if established it would pose a significantly increased threat to Maine's forest resource.

Because of the threat, and in response to these reports, the MFS collected female moths and egg masses from the damaged trees, and male moths from the surrounding environs. These specimens were sent to an APHIS lab in Massachusetts for genetic testing to determine if the culprits were European or Asian gypsy moths. We have been reassured by personnel at the lab that similar occurrences are not unheard of and past testing has not revealed Asian Gypsy moths in the Northeast. Results from the genetic testing will be reported in the annual Summary Report. We would be interested in hearing about other occurrences of this feeding behavior. If you notice blue spruce with defoliation of current-year needles with the characteristic buff-colored egg masses of gypsy moth please report your observation to the Insect and Disease Lab.

**\*Spider Mites** (various) – Several foliage samples have come into the Lab with damage from spider mites. Foliage affected by mite feeding has a mottled or stippled appearance. With heavy feeding, complete discoloration of the needles or leaves and leaf drop may occur. To determine if spider mites are actively feeding on a tree or shrub, hold a white piece of paper under the affected foliage and shake or beat the foliage. Mites will appear as tiny dots crawling over the paper. Predatory mites tend to move quickly and pestiferous mites more slowly. You should also inspect the foliage and twigs using a hand lens for webbing, cast skins, and eggs.

Natural enemies including predatory mites, lady beetles and other predatory insects are important in regulating populations of spider mites. Because of this, mites are prime examples of pests that will replace other pests or exhibit population resurgence following conventional pesticide treatments. Bio-rational pesticides such as horticultural oils and soaps can be used to control damaging mite populations and have a lower impact on mite and insect predators than conventional pesticides. Another low-impact option for homeowners is washing the trees several times with a garden hose to help reduce pestiferous mite populations below damaging levels.

## **Diseases and Injuries**

**Hail Injury** – This summer has seen the development of several serious thunderstorms in many areas of the state. Often accompanying these storms comes hail capable of causing considerable damage to crops and buildings, as well as to trees. Hail can strip trees of foliage, and cause large numbers of small, mechanical wounds to the bark of branches and main stems. Lesions occur primarily on the upper side of twigs. Branches on the side of the tree that faced into the direction of the storm receive the heaviest damage. Heavily damaged twigs and branches can die back from the tip.

While the direct mechanical damage may appear obvious, the long-term effects of such wounding are often more serious. Injuries caused by hail can act as entry courts for pathogenic fungi. In particular, infection is especially favored for fungi able to grow in bark tissues and cause cankers. Both *Neonectria* (= *Nectria*)

*galligena*, the common perennial target canker of birches and other hardwoods, and *Diaporthe alleghaniensis*, a disease of yellow birch, are known to infect trees through hail injuries. Tip blight of hard pines caused by *Diplodia pinea* has also been shown to increase rapidly following hail damage. Infection by these and other fungi can result in branch die back and crown loss for several years following the initial damage. In addition, the dying and dead tissues can be attractive to wood borers and other insects that favor weakened trees.

Little can be done to prevent hail injury. However, treating smaller, damaged ornamental trees may be practical. Pruning heavily damaged twigs and branches shortly (within a month or so) after the storm will help to ensure that the tree doesn't become infected with canker fungi, or become attractive to secondary insect pests. Pruning branches with older injuries that also exhibit die-back symptoms is also recommended. Older injuries that appear to have callused well, and have not resulted in branch die back can be left to recover.

***Macrophoma* Needle Blight of Arborvitae** – Back in June we reported on several problems common to arborvitae (northern white cedar, *Thuja occidentalis*). Two of the diseases we occasionally see on arborvitae are *Phomopsis* needle blight and *Kabatina* tip dieback, which are actually more common on eastern red cedar (*Juniperus virginiana*). Over the summer, we have observed a browning of arborvitae foliage that was not associated with a tip dieback typical of either known pathogen. A species of *Macrophoma* has been identified as being associated with, and likely causing this needle browning. Only foliage is affected. The fungus appears as small, black “dots” (pycnidia, the spore-producing structures) on the undersurface of the foliage. From a distance, the affected foliage appears similar to that seen as natural twig-shedding during the fall months. However, foliage sections browned by *Macrophoma* are usually slightly smaller in size. The pathogen has been associated with considerable needle loss and thinning of crowns in landscape situations, especially in coastal areas, but it is unlikely that infection can or will result in tree mortality.

Little is known of the life cycle or etiology of the pathogen. In fact, no one has yet attempted to identify the fungus to the species level. For this reason, it is too early to suggest control recommendations, given that they may be needed. Following cultural guidelines for avoiding needle infections by other pathogens will be the best protocol for ornamental plantings. It is not expected to be a concern in natural forest conditions.

The disease has been identified from trees in Ashland, Madison, Harpswell, Augusta, and Freeport. It likely occurs statewide, wherever northern white-cedar is found. An initial literature review has indicated that this disease has not previously been recognized in Maine. The needle blight has been reported from Wisconsin. We suspect that it has been here in Maine, but over-looked because the symptoms are similar to other needle diseases, and because the damage, in most years, is incidental. It is also likely that the disease has become more obvious as a result of the wet seasons of recent past years.

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Information on any entry preceded by an (\*) may be available on our website or can be requested by calling or writing to the Insect and Disease Laboratory, 50 Hospital Street, Augusta, Maine 04330-6514, Phone (207) 287-2431, Fax (207) 287-2432.